

WHAT IS CLAIMED IS:

1. A solution for the introduction and washout of vitrifiable concentrations of cryoprotectants in a cell, tissue or organ, comprising mannitol and lactose.

2. A solution for the cryopreservation of living systems by vitrification comprising the solution of Claim 1 and vitrifiable concentrations of cryoprotectant.

3. The solution of Claim 2 wherein said cryoprotectant comprises: dimethyl sulfoxide, formamide, and ethylene glycol.

4. The solution of Claim 2, wherein said cryoprotectant further comprises: polyvinyl alcohol or a copolymer of vinyl alcohol and vinyl acetate

5. The solution of Claim 4 wherein the polyvinyl alcohol moiety is 80% of the copolymer.

6. The solution of Claim 2, wherein said cryoprotectant further comprises polyglycerol.

7. The solution of claim 2 wherein said cryoprotectant comprises: nonpenetrating components comprising the carrier solution or the carrier solution plus additional impermeants and wherein said nonpenetrating components total 1.2 to 1.5 times isotonic.

8. A method for the introduction and washout of vitrifiable concentrations of cryoprotectants in a cell, tissue or organ, comprising adding the solution of claim 1 to said cell, tissue or organ; and removing the solution from the cell, tissue or organ.

9. A method for the cryopreservation of living systems by vitrification comprising:

adding a solution comprising mannitol, lactose, and vitrifiable concentrations of cryoprotectant to said living system; and cooling said living system to a desired temperature.